

Serial No.: 10/623,005  
Docket No.: 200309793-1

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AUG 21 2007

The present remarks are in response to the Office Action of May 31, 2007.

Claims 1, 2, and 4-26 are currently pending.

Reconsideration of the application is respectfully requested in view of the following responsive remarks. For the Examiner's convenience and reference, the Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

In the Office Action, the following rejections were issued:

- (1) Claims 1-2 and 4-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Application No. 2004/0145088 (hereinafter "Patel"), in view of U.S. Patent No. 6,328,408 (hereinafter "Gelbart"), U.S. Patent No. 6,536,889 (hereinafter "Biegelsen"), or U.S. Patent No. 6,132,021 (hereinafter "Smith").
- (2) Claims 20-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Gelbart, Biegelsen or Smith, each in further view of U.S. Patent No. 6,375,874 (hereinafter "Russell").

Rejections under 35 U.S.C. 103(a)

Before discussing the obviousness rejections herein, it is thought proper to briefly state what is required to sustain such a rejection. The issue under § 103 is whether the PTO has stated a case of *prima facie* obviousness. According to MPEP § 2142, the Examiner has the burden and must establish a case of *prima facie* obviousness by showing the prior art reference, or references combined, teach or suggest all the claim limitation in the instant application. Further, the Examiner has to establish some motivation or suggestion to combine and/or modify the references, where the motivation must arise from the references themselves, or the knowledge generally available to one of ordinary skill in the art. The Applicant respectfully submits that the Examiner has not satisfied the requirement for establishing a case of *prima facie* obviousness in this rejection.

Rejections over Patel in view of Gelbart, Biegelsen or Smith

Claims 1, 2 and 4-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Gelbart, Biegelsen or Smith. Patel discloses a process for forming a three-dimensional article. The three-dimensional article is produced by depositing a layer of a first material, preferably a powder, over the surface of a build platform within an enclosure (Paragraphs 0061 and 0063). A second material in the form of a liquid reagent is jetted onto the layer of the first material, such that the second material reacts with the first layer to form a cured lamina. These steps are repeated until a three-dimensional article is built-up of cured layers (Paragraph 0009).

Patel does not teach the use of an interleaving process for building the three dimensional objects as required by currently pending claims 1 and 13. The interleaving process of Applicant's invention for producing solid three dimensional objects involves gaps in coverage produced by the first ink-jettable composition remaining open to be filled by the second ink-jettable composition. It should be noted that this interleaving is taught in the drawings to be not just two-dimensional (X and Y axis), but rather, is three dimensional (along a Z-axis).

In the office action dated May 31, 2007 the Examiner questioned what figures 2A and 2B actually disclosed. If one contrasted Figures 1A and 1B with Figures 2A and 2B, the difference interleaving makes is readily apparent. Figures 1A and 1B show the creation of multiple layers by adding a first ink-jet composition to a second ink-jet composition in a sequential manner. Interleaving is illustrated in 2A and 2B in which gaps in coverage produced by the first ink-jettable composition remain open to be filled by the second ink-jettable composition. It is also notable that three-dimensional interleaving is in fact shown by Figures 2A and 2B when the two figures are viewed in combination. Please note that each material is applied to each layer so that droplets are applied in a different pattern from one layer to the next. For example, Figure 2A shows the two different material applied in the following pattern (ABABAABABA . . .), whereas Figure 2B shows material applied in the following pattern (ABAABABABAA . . .). These clearly depict this three-dimensional interleaving which is inherent in the term as defined by the current specification.

It is also notable that an interleaving process as claimed cannot be employed in accordance with the teachings of Patel as a whole. Patel's preferred embodiments

include a first powder layer containing the first reactive component followed by the addition of a second, liquid layer, containing a viscosity lowering diluent so that the whole of the applied liquid is incorporated with the powder to form a seamless composite (paragraph 0012). Paragraph 0009 talks about this process being performed in a sequential cross-sectional manner. An interleaving process would not work as applied to the Patel reference because the first powder layer is not viscous enough or in a sufficiently distinct form so as to be distinctly and particularly applied in a defined area so as to allow gaps in coverage. These gaps are then filled in by a second ink-jet composition, thus facilitating a reaction and the formation of a 3-dimensional free form structure. Thus Applicant contends that one of ordinary skill in the art would not add an interleaving process as taught by Gelbart, Biegelsen or Smith to the teachings of Patel because it would effectively destroy the objective of Patel. Further, Patel teaches away from this combination.

It is also notable in paragraph 10 of the Patel specification that the objects produced by its process are self-supporting, whereas the previously cited art required supplemental material to be used to support the object. The supplemental material would then be removed and discarded. In essence, Patel teaches that one of the principle advantages of its process is that it does not use removable support material.

In contrast, claims 1 and 13 teach a method and a system for free-form fabrication of solid three-dimensional objects comprising, *inter alia*, separately ink-jetting a first ink-jettable composition including a reactive build material and a second ink-jettable composition including a curing agent onto a substrate. Following ink-jetting, a reaction occurs between the reactive build material and the curing agent, thereby resulting in the formation of a solidifying composition. The claims further require that at least a portion of the three-dimensional objects produced be supported by an inkjettable removable material.

Patel fails to teach an essential element of the presently pending claims, namely the use of injectable removable support material. As Patel teaches away from the use of removable support material, it cannot render the use of such support injectable material as obvious. It is not permissible to modify a reference to arrive at the claimed invention when the modification would be contrary to the teachings of the reference. As such, each and every element of the pending claims is not taught in the cited reference and therefore, no *prima facie* case of obviousness has been presented.

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In light of the above arguments, it is respectfully requested that the rejection be withdrawn and the claims be allowed.

Claims 20-26 were also rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Gelbart, Biegelsen or Smith, each in further view of Russell. Because claims 20 and 21 depend from claim 13, it is assumed that these claims will be allowable along with claim 13 as discussed above. Additionally, because claim 22 employs a three-dimensional interleaving process in its formation, and claims 23-26 depend from claim 22, the same relevant arguments as outlined above apply. Therefore, Applicant asserts that these claims are also in condition for allowance and respectfully requests that the rejection be withdrawn and the claims be allowed.

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CONCLUSION

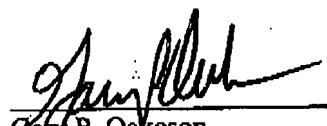
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In view of the foregoing, Applicant believes that claims 1, 2 and 4-26 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone the undersigned attorney so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025

Dated this 21<sup>st</sup> day of August, 2007.

Respectfully submitted,



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